

2.0 PROJECT MANAGEMENT

2.1 Administration

The Contractor has the responsibility for management and performance of the Work. CDOT shall have the right to visit the Site and observe the Work for the purposes of determining whether the Work is proceeding in conformance with the requirements of the Contract Documents.

2.1.1 Work Breakdown Structure (WBS)

The Contractor shall submit to the CDOT Project Director an Initial Schedule for Acceptance, including a detailed, organized hierarchical division of the Work Breakdown Structure (WBS) for completing each element of the Work.

The following list represents the minimum levels of the WBS and salient features that all cost and schedule information shall include. However, further detail may be provided by the Contractor to ensure a clear understanding of the Contract Documents. The Contractor shall submit its initial schedule specifying WBS Activities and proposed Work segments within 20 Days of NTP1. NTP2 shall not be issued until the CDOT Project Director has Accepted the Initial Schedule.

The Accepted WBS shall be the basis for organizing all Work under the Contract Documents, and shall be used as a basis for the Contract schedules, and other cost control systems.

The WBS Breakdown of salient design and construction components shall include:

- Project Management
 - Project Administration
 - Quality Management
 - Public Information
 - Mobilization
- Professional Engineering Services
 - Roadway Design
 - Hydraulic/Hydrology Design
 - Bridge Structure Design
- All DBE/ESB Services
- Removals
- Bridges and Minor Structures
- Walls
- Earthwork
- Drainage
- Utilities
- Pavements
- Maintenance of Traffic

- Detours
- Signing, Pavement Marking, Signals, ITS and Lighting
- Permits
- Environmental Management
- Maintenance during Construction

The Contractor shall prepare and submit to the CDOT Project Director the following CPM schedules in accordance with Book 2, Section 19,(Section 108.03):

- Initial Schedule
- Project Schedule
- Progress Schedule
- Schedule Updates

Each of the CPM schedules shall be cost-loaded for the WBS indicated above.

2.2 Allocation of Contract Price

The Contractor shall allocate the lump sum Contract Price among the salient features defined by the WBS such that each Activity has a price allocation that accurately indicates the cost of that Activity. Actual monthly payments to the Contractor shall be based on the determination of physical progress considering labor, materials, equipment, resources utilized, design hours, or other physical units acceptable to the CDOT Project Director. It must be possible to accurately compute progress payments to the Contractor from the updates of the WBS schedule. The Contractor's allocation of the lump-sum Contract Price shall be Approved by the CDOT Project Director. Each of the Activities shall be allocated a cost and a physical unit that will allow objective determination of Activity completion. The cost of mobilization shall not exceed 5 percent of the lump-sum Contract Price and will be paid for in accordance with Book 2, Section 19, (Section 626).

Requests for unbalanced costs will be rejected if the Department determines that any of the allocated costs are materially unbalanced to the potential detriment of the Department. Unbalanced costs are defined in Book 2, Section 19 (Section 102.07).

2.2.1 Salient Features

The WBS shall contain a sufficient number of salient features to accurately track production on the Project. Monthly payments to the Contractor shall be based on the percentage completed of each of the salient features listed in the WBS, calculated as a percentage of the Contract Price.

2.2.2 Methods Statement

A methods statement shall be prepared for each of the salient features listed in the schedule, for all critical path items in the schedule, and for any feature not listed in the schedule that the Contractor considers a controlling factor for timely completion. The Methods Statement shall be completed in accordance with Book 2, Section 19 (Section 108.03).

2.3 Cost Management

2.3.1 Progress Payment Calculations

CDOT will base progress payments on a mutually agreed-upon estimate of percentage of the Work completed, not on measured quantities. The Contractor shall track the progress of the Activities identified on the overall Project schedule to determine the Monthly Progress Schedule. The Accepted Monthly Progress Schedule will determine the amount of the Contractor's progress payments, based on the salient features identified by the Contractor. Percentage completed shall be calculated using Project-scheduling software meeting the requirements of this Section, where progress is measured based on percent complete / Days remaining.

Partial payment for stored materials shall be made according to Book 2, Section 19 (Section 109.07).

The Contractor's invoice shall not include a request for payment for Work documented as nonconforming by either the Contractor or CDOT. The payment to the Contractor will be the amount shown on the Contractor's Approved invoice, modified for appropriate price reductions for Nonconforming Work, if any, retainage, disincentive payments, and any deductions.

2.3.2 Invoice Submittals

The Contractor shall submit invoices to the CDOT Project Director each month. Invoices shall be prepared using MS Word or MS Excel. Each monthly invoice shall be submitted in draft form for review on a date mutually agreeable to the Contractor and CDOT Project Director. Draft monthly invoice submittals may be transmitted in hard copy or electronic format via email. If transmitted by hard copy, three copies shall be provided.

The Contractor shall submit to the CDOT Project Director for Approval a final monthly invoice within five calendar days after each progress status meeting, defined below. Final invoice submittals shall include one paper copy (color) and one electronically-submitted copy via email.

2.3.3 Invoice Documents

2.3.3.1 Invoice Content

The invoice documents shall include:

1. Invoice Cover Sheet.

The cover sheet shall indicate the following information:

- A. Project number and title.
- B. Invoice number (numbered consecutively starting with "1").
- C. Period covered by the invoice (specific calendar dates).
- D. Total earned to-date for the Project as a whole and for each Work segment. The breakdown is required because retainage will be calculated and withheld on each Work segment, and partially released upon completion of the Work segment.
- E. Nonconforming work and amount withheld identified.

- F. Subcontractor and material supplier invoices.
 - G. Authorized signature and title of signatory.
 - H. Date that invoice was signed.
2. Updated Monthly Progress Schedule.

No invoice shall be Approved nor payment made if there is not a current Accepted Monthly Progress Schedule. The status date of the Monthly Progress Schedule, coinciding with the payment invoice date, is the last day of each month. The data date for use in calculating the Monthly Progress Schedule shall be the first Day of the following month.

The Contractor shall make all corrections to the Monthly Progress Schedule requested by the CDOT Project Director and resubmit the Monthly Progress Schedule. If the Contractor does not agree with the CDOT Project Director's comments, the Contractor shall provide written notice of disagreement within five Days from the receipt of the comments. If necessary, the items in disagreement shall be resolved in a meeting held for that purpose.

No invoice will be reviewed or processed until all invoice documents are received by the CDOT Project Director.

2.3.4 Progress Status Meetings

A progress status meeting shall be conducted each time a draft monthly invoice submittal is made. The meeting shall be used to verify, address and finalize the following:

1. Actual start dates.
2. Actual and planned Completion Deadlines.
3. Earned value of Work that has been Accepted and reported in-place, based on installed quantities and stored materials.
4. Activity percent complete.
5. Incorporation of Approved Change Orders.
6. Verification of unit-price items, if any.
7. Status of outstanding Nonconforming Work.
8. Completion of Value Engineering Change Proposals, if any.
9. Work performance.
10. Project Schedule, including changes from previous month's Schedule.
11. Critical Path(s).

Following the Progress status meeting, and upon approval of the final monthly invoice, payment shall be Approved within seven Days.

2.3.4.1 WBS Activities and Schedule Modifications

When it becomes necessary to add, combine, eliminate or modify WBS Activities specified in the Contract Documents to reflect modifications to the Work, such changes must be Approved by the CDOT Project Director in accordance with the Contract Documents and incorporated into subsequent schedule submittals.

2.4 Field Facilities and Options

The Contractor shall provide all office space and equipment as required for the Project. The Contractor shall make available fully-operational field office prior to beginning any construction Activities. CDOT shall return possession of the facility to the Contractor no later than 45 calendar days after Final Acceptance of the project.

The Contractor shall secure all sites, obtain all required site permits, install, set up, and provide utility services, and maintain the facilities as part of the Work. The Contractor may consult with the CDOT Project Director about availability of suitable local sites and office facilities.

In the event that office appurtenances are stolen, destroyed, or damaged during the Work, except by fault of CDOT, the Contractor shall at its expense repair or replace those items to their original condition within seven Days. If loss or damage is caused by CDOT personnel, the Contractor shall replace the facilities within seven Days, except that CDOT shall be responsible for costs incurred.

2.4.1 Project Special Provisions

The following specifications modify and take precedence over the Standard Specifications.

Section 620 of the Standard Specifications is revised for this project as follows:

Section 620.02 shall include the following:

General:

The Field Office (Class 2) shall consist of a weather proof insulated mobile house-type trailer. Variations from the details shown are subject to Approval of CDOT. Comparable office space will be considered subject to Approval of CDOT, at no additional cost.

Outside Dimensions: 50' long x 12' wide x 7'6" high exclusive of draw bar and steps.

Windows: A minimum of six with provisions for cross ventilation and locking. All windows shall have screens and steel mesh installed for security. Mini blinds shall be provided for all windows.

Doors: Three inside doors, two for office partitions, one for closet. The closet door shall be solid wood with dead bolt lock. The outside doors shall be steel security doors with double cylinder

(dual key) dead bolt locks. Reinforced decks and steps shall be installed at each outer door. An awning shall be provided for each entrance door. Minimum dimensions must equal landing area.

Built-in Desk: 2' x full width (2.5' high) supported by two drawer legal size metal file pedestals (located in computer room). The counter shall have 2 pen drawers.

Office Desks: Three 5' x 2.5' six drawer desks with center pen drawer. The top of the desk shall be free of all scratches, chips and dents.

Furniture/Office items:

Five adjustable and padded desk chairs with rollers

One plan rack (10 project capacity) full size plans

Four folding chairs

Two 30" x 72" folding tables

Two 48" x 72" dry erase boards

One 36" x 72" cork bulletin board

One 24" x 36" cork bulletin board

Six sets of keys for all locks

Two book cases, minimum 48" X 36"wide x 18" deep

One work table or desk.

Telephones: The field Office (Class 2) shall be provided with a minimum of five telephones, two located in each office, and one at the work table. Three private lines shall be provided (one line for the facsimile machine and two lines with roll-over capability for incoming calls). Each of the telephones provided for the field office shall be fully capable of utilizing either line. The Contractor shall provide communications cords for the facsimile machine and telephones. One jack each shall be located in each of the offices and the work table. The Field Office (Class 2) shall be equipped with high speed internet access for each computer line including accessories such as routers, cables, etc. and a minimum speed of 640 kbps.

Mobile Telephones: The Contractor shall provide up to six transportable cellular phones with direct radio capabilities for use by CDOT. The phones shall be equipped with charging units and adapters for both AC and DC charging. The phones shall be provided with a private number, call forwarding, call conferencing, call waiting and a pager with voice message capabilities. The Contractor shall be responsible for maintaining all mobile telephones, and other accessories, in good operating condition at all times during this project.

Fire Extinguisher: Two twenty pound dry chemical.

Drinking Water: Drinking water, dispensed from an acceptable cooling device with both hot and cold capabilities. Glass or plastic bottles to be used.

Heating and Air Conditioning: An adequate heating and air conditioning system capable of maintaining a heat temperature of 85 degrees F (Max.), and a cooling temperature of 65 degrees F (min.). Filters to be provided and changed by the contractor.

Electrical: Work shall conform to the national electrical code for 110/220 volt, 60hz, applications and provide uniform power to properly operate all field office equipment.

Closet: 15 square feet with one shelf (minimum 1' in depth) fitted on each wall. Closet shall be equipped with closet light, switch, and lock.

Facsimile Machine: The facsimile machine shall print on plain paper and shall be capable of sending documents of all sizes up to and including 11" x 17". It must be able to perform sequential broadcast, polling and delayed transmission with a minimum ten page memory. The contractor shall install and maintain the fax machine in the engineer's field office. Should the fax machine require repair and be out of service for more than twenty four hours, a like machine will be provided within twenty four hours. The Contractor shall provide a roll around stand for the fax machine.

Copy Machine: The copy machine shall be a dry, desktop model with a stationary platen. The Contractor shall install and maintain the copy machine in the CDOT field office. Should the copy machine require repair and be out of service for more than twenty-four hours, a like replacement will be supplied within twenty four hours. The copy machine shall be capable of producing a minimum of twenty five copies per minute. Maximum size of the original shall be 11"X17".

The copy machine shall have two standard paper cassettes accommodating paper sizes 8 1/2"X11"to 11"X17". Each cassette shall accept a minimum of 250 sheets for a total of 500 sheets of paper capacity. Copy machine shall have a single sheet bypass for manual copying onto special stock, not in paper cassettes and capable of using paper sizes of 8 1/2"X11"to 11"X17".

Contactor shall set up the office copy/fax machine as networked system for printing from all CDOT computers, up to eight for the entire field office.

The copy machine shall have an automatic exposure control to automatically control exposure level for each original with a manual light/dark exposure control and shall be capable of copying original documents of both sheet and bound documents. The copy machine shall be capable of making 1 to 99 continuous copies and shall be capable of copying onto light weight paper of 16# or onto heavier paper of 32#. The copy machine shall be capable of zoom magnification and reduction from 70% to 150% in 1% increments. The copy machine shall be equipped with a

sorter attachment with a minimum of ten sort bins. The Contractor shall supply paper as needed.

The Field Office (Class 2) shall be equipped with one of the following security systems or an approved equal:

- 1) Security guard on premises at all times during non-working hours
- or,
- 2) Surveillance or silent watchman type electronic security system installed in each of the field facilities

The Contractor shall maintain all furnished equipment in good working condition and shall replace or repair any nonfunctional equipment within five Work Days. This shall include replacement of light bulbs and fluorescent tubes for the field office and field laboratory.

Section 620.05 is revised as follows:

The Contractor shall provide one (1) Sanitary Facility for CDOT staff use. The sanitary facility shall be located at the CDOT Field Office

2.5 Document Management

The Contractor shall establish and maintain its own Document Control System (DCS) to store and record all correspondence, drawings, progress reports, technical reports, specifications, Contract Documents, deliverables, calculations, and administrative documents generated under the Contract. Document Control, storage, and retrieval methods shall include the use of both hard copies and electronic records. The Contractor's DCS shall handle all Project documents.

All correspondence of the Contractor to and from CDOT and its representatives with respect to the Contract shall be serialized, and the Contractor shall maintain separate incoming and outgoing correspondence logs. At a minimum, a serialization similar to the following is required:

